



SEQUENCE LISTING

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TECH CENTER 1600/2900

<110> Allen, Stephen M.

<120> Plant Cellulose Synthases

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<150> US 60/092,844

<151> 1998-07-14

<150> PCT/US99/15871

<151> 1999-07-13

<150> 09/720383

<151> 2000-12-21

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<213> Hordeum vulgare

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 50                55                60

Gly Leu Val Ala Gly Ser His Asn Arg Asn Glu Leu Val Val Ile Arg
 65                70                75                80

Arg Asp Gly Glu Pro Gly Pro Lys Pro Met Asp Gln Arg Asn Gly Gln
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Thr Arg Phe Lys Arg Leu Lys Gly Cys Ala Arg Val Pro Gly Asp Glu
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Glu	Arg	Arg	Ala	Met	Lys	Arg	Glu	Tyr	Glu	Glu	Phe	Lys	Val	Arg	Ile	
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Asn	Ala	Leu	Val	Ala	Lys	Ala	Gln	Lys	Val	Pro	Glu	Glu	Gly	Trp	Thr	
465					470					475					480	
Met	Gln	Asp	Gly	Thr	Pro	Trp	Pro	Gly	Asn	Asn	Val	Arg	Asp	His	Pro	
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Gly	Met	Ile	Gln	Val	Phe	Leu	Gly	Gln	Ser	Gly	Gly	Leu	Asp	Cys	Glu	

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Gly	Asn	Glu	Leu	Pro	Arg	Leu	Val	Tyr	Val	Ser	Arg	Glu	Lys	Arg	Pro
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Gly	Tyr	Asn	His	His	Lys	Lys	Ala	Gly	Ala	Met	Asn	Ala	Leu	Val	Arg
	530					535					540				
Val	Ser	Ala	Val	Leu	Thr	Asn	Ala	Pro	Tyr	Leu	Leu	Asn	Leu	Asp	Cys
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Asp	His	Tyr	Ile	Asn	Asn	Ser	Lys	Ala	Ile	Lys	Glu	Ala	Met	Cys	Phe
				565					570					575	
Met	Met	Asp	Pro	Leu	Leu	Gly	Lys	Lys	Val	Cys	Tyr	Val	Gln	Phe	Pro
			580					585					590		
Gln	Arg	Phe	Asp	Gly	Ile	Asp	Arg	His	Asp	Arg	Tyr	Ala	Asn	Arg	Asn
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Val	Val	Phe	Phe	Asp	Ile	Asn	Met	Lys	Gly	Leu	Asp	Gly	Ile	Gln	Gly
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Pro	Ile	Tyr	Val	Gly	Thr	Gly	Cys	Val	Phe	Arg	Arg	Gln	Ala	Leu	Tyr
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Gly	Tyr	Asp	Ala	Pro	Lys	Thr	Lys	Lys	Pro	Pro	Ser	Arg	Thr	Cys	Asn
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Cys	Trp	Pro	Lys	Trp	Cys	Phe	Cys	Cys	Cys	Cys	Phe	Gly	Asn	Arg	Lys
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Gln	Lys	Lys	Thr	Thr	Lys	Pro	Lys	Thr	Glu	Lys	Lys	Lys	Leu	Leu	Phe
		675					680					685			
Phe	Lys	Lys	Glu	Glu	Asn	Gln	Ser	Pro	Ala	Tyr	Ala	Leu	Gly	Glu	Ile
	690					695					700				
Asp	Glu	Ala	Ala	Pro	Gly	Ala	Glu	Asn	Glu	Lys	Ala	Gly	Ile	Val	Asn
705					710					715					720
Gln	Gln	Lys	Leu	Glu	Lys	Lys	Phe	Gly	Gln	Ser	Ser	Val	Phe	Val	Thr
				725					730					735	
Ser	Thr	Leu	Leu	Glu	Asn	Gly	Gly	Thr	Leu	Lys	Ser	Ala	Ser	Pro	Ala
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Ser	Leu	Leu	Lys	Glu	Ala	Ile	His	Val	Ile	Ser	Cys	Gly	Tyr	Glu	Asp
		755					760					765			
Lys	Thr	Asp	Trp	Gly	Lys	Glu	Ile	Gly	Trp	Ile	Tyr	Gly	Ser	Val	Thr
	770					775					780				
Glu	Asp	Ile	Leu	Thr	Gly	Phe	Lys	Met	His	Cys	His	Gly	Trp	Arg	Ser
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Ile	Tyr	Cys	Ile	Pro	Lys	Arg	Val	Ala	Phe	Lys	Gly	Ser	Ala	Pro	Leu

805										810					815				
Asn	Leu	Ser	Asp	Arg	Leu	His	Gln	Val	Leu	Arg	Trp	Ala	Leu	Gly	Ser				
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Ile	Glu	Ile	Phe	Phe	Ser	Asn	His	Cys	Pro	Leu	Trp	Tyr	Gly	Tyr	Gly				
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Gly	Gly	Leu	Lys	Phe	Leu	Glu	Arg	Phe	Ser	Tyr	Ile	Asn	Ser	Ile	Val				
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Ile	Cys	Leu	Leu	Thr	Gly	Lys	Phe	Ile	Thr	Pro	Glu	Leu	Asn	Asn	Val				
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Ala	Ser	Leu	Trp	Phe	Met	Ser	Leu	Phe	Ile	Cys	Ile	Phe	Ala	Thr	Ser				
			900					905						910					
Ile	Leu	Glu	Met	Arg	Trp	Ser	Gly	Val	Gly	Ile	Asp	Asp	Trp	Trp	Arg				
		915					920					925							
Asn	Glu	Gln	Phe	Trp	Val	Ile	Gly	Gly	Val	Ser	Ser	His	Leu	Phe	Ala				
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Val	Phe	Gln	Gly	Leu	Leu	Lys	Val	Ile	Ala	Gly	Val	Asp	Thr	Ser	Phe				
945					950					955					960				
Thr	Val	Thr	Ser	Lys	Gly	Gly	Asp	Asp	Glu	Glu	Phe	Ser	Glu	Leu	Tyr				
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Thr	Phe	Lys	Trp	Thr	Thr	Leu	Leu	Ile	Pro	Pro	Thr	Thr	Leu	Leu	Leu				
			980					985						990					
Leu	Asn	Phe	Ile	Gly	Val	Val	Ala	Gly	Val	Ser	Asn	Ala	Ile	Asn	Asn				
		995					1000						1005						
Gly	Tyr	Glu	Ser	Trp	Gly	Pro	Leu	Phe	Gly	Lys	Leu	Phe	Phe	Ala	Phe				
	1010					1015						1020							
Trp	Val	Ile	Val	His	Leu	Tyr	Pro	Phe	Leu	Lys	Gly	Leu	Val	Gly	Arg				
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Gln	Asn	Arg	Thr	Pro	Thr	Ile	Val	Ile	Val	Trp	Ser	Ile	Leu	Leu	Ala				
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Ser	Ile	Phe	Ser	Leu	Leu	Trp	Val	Arg	Ile	Asp	Pro	Phe	Leu	Ala	Lys				
			1060					1065						1070					
Asp	Asp	Gly	Pro	Leu	Leu	Glu	Glu	Cys	Gly	Leu	Asp	Cys	Asn						
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<210> 11
 <211> 1138
 <212> DNA
 <213> Oryza sativa

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<400> 11
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gtgacgtgct atatttccga cgacgcaggc gcgaggtga cacgtaacgc ggtcgtggag 180
gcgggcccggt tcgcggegtt ttgggtgtcg ttctgccgga agcacggcgt cgagccgagg 240
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aggtgaaaaa ctcagctaaa acctgaccca agctgtaaca tgggtaaaaa tatatggccc 1080
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<210> 12
<211> 341
<212> PRT
<213> Oryza sativa

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<400> 12
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 1             5             10             15

Arg Ser Arg Arg Ser Pro Arg Arg Thr Pro Cys Cys Pro Tyr Ile Leu
          20             25             30

Ala Ala Gly Tyr Pro Ala Gly Lys Val Thr Cys Tyr Ile Ser Asp Asp
 35             40             45

Ala Gly Ala Glu Val Thr Arg Asn Ala Val Val Glu Ala Ala Arg Phe
 50             55             60

Ala Ala Leu Trp Val Ser Phe Cys Arg Lys His Gly Val Glu Pro Arg
 65             70             75             80

Asn Leu Glu Ala Tyr Phe Asn Ala Gly Glu Gly Gly Gly Gly Lys Ala
          85             90             95

Lys Val Val Ala Arg Gly Ser Tyr Arg Gly Met Ala Trp Pro Glu Leu
          100            105            110

Val Arg Asp Arg Arg Arg Val Arg Arg Glu Tyr Glu Glu Met Arg Leu
          115            120            125

Arg Ile Asp Ala Leu Gln Ala Ala Asp Ala Arg Arg Arg Arg Gly
          130            135            140

Ala Ala Asp Asp His Ala Gly Val Val Gln Val Leu Ile Asp Phe Ala
          145            150            155            160

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Gly Ser Val Pro Gln Leu Gly Val Ala Asn Gly Ser Lys Leu Ile Asp
 165 170 175
 Val Ala Ser Val Asp Val Cys Leu Pro Ala Leu Val Tyr Val Cys Arg
 180 185 190
 Glu Lys Arg Arg Gly His Ala His His Arg Lys Ala Gly Ala Met Asn
 195 200 205
 Ala Pro Phe Ile Leu Asp Leu Asp Cys Asp Tyr Tyr Val Asn Asn Ser
 210 215 220
 Gln Ala Leu Arg Ala Gly Ile Cys Phe Met Ile Glu Arg Gly Gly Gly
 225 230 235 240
 Gly Ala Ala Glu Asp Ala Gly Ala Val Ala Phe Val Gln Phe Pro Gln
 245 250 255
 Arg Val Asp Gly Val Asp Pro Gly Asp Arg Tyr Ala Asn His Asn Arg
 260 265 270
 Val Leu Phe Asp Cys Thr Glu Leu Gly Leu Asp Gly Leu Gln Gly Pro
 275 280 285
 Ile Tyr Val Gly Thr Gly Cys Leu Phe Arg Arg Val Ala Leu Tyr Ser
 290 295 300
 Val Asp Leu Pro Arg Trp Arg Pro Arg Arg Ser Leu Gly Cys Arg Leu
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 Leu Gly Glu Asp Glu Arg Leu Trp Ser Arg Met Lys Gln Met Val Ile
 325 330 335
 Leu Ser Gly Pro Arg
 340

<210> 13
 <211> 3517
 <212> DNA
 <213> Glycine max

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 tgttgtgccca ttcccatatt gtcccattca ctaagacatg gaagccagcg ctggactggg 180
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 tcatgggagg atgagctatg gaagaggtcc tgaagatgat gacaattccc agttcccaac 600
 acctgtcatt gctggtgggc gttctaggcc tgtaagtggg gagttcccaa tatcatctaa 660
 tgcttatggg gatcagatgt tatcctcttc actgcataaa agagtgcac ccatatccagt 720
 gtctgaacct ggaagtgcaa gatgggacga aaaaaaaga agatggatgg aaagatagaa 780
 tggatgactg gaaattgcag caaggcaatt tggggcctga accggatgaa gatccagatg 840

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gatacagacc catgaaccca gtacatgatg ccctggggct atggctaacc tctatcatat 1020
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<210> 14
<211> 1039
<212> PRT
<213> Glycine max

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<220>
<221> UNSURE
<222> (201)
<223> Xaa = any amino acid

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<400> 14

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Leu	Val	Val	Ile	His	Gly	His	Glu	Glu	Pro	Lys	Ala	Leu	Lys	Asn	Leu	20	25	30	
Asp	Gly	Gln	Val	Cys	Glu	Ile	Cys	Gly	Asp	Gly	Val	Gly	Leu	Thr	Val	35	40	45	
Asp	Gly	Asp	Leu	Phe	Val	Ala	Cys	Asn	Glu	Cys	Gly	Phe	Pro	Val	Cys	50	55	60	
Arg	Pro	Cys	Tyr	Glu	Tyr	Glu	Arg	Arg	Glu	Gly	Ser	His	Leu	Cys	Pro	65	70	75	80
Gln	Cys	Lys	Thr	Arg	Tyr	Lys	Arg	Leu	Lys	Gly	Ser	Pro	Arg	Val	Glu	85	90	95	
Gly	Asp	Asp	Asp	Glu	Glu	Asp	Val	Asp	Asp	Ile	Glu	His	Glu	Phe	Asn	100	105	110	
Ile	Asp	Glu	Gln	Lys	Asn	Lys	His	Gly	Gln	Val	Ala	Glu	Ala	Met	Leu	115	120	125	
His	Gly	Arg	Met	Ser	Tyr	Gly	Arg	Gly	Pro	Glu	Asp	Asp	Asp	Asn	Ser	130	135	140	
Gln	Phe	Pro	Thr	Pro	Val	Ile	Ala	Gly	Gly	Arg	Ser	Arg	Pro	Val	Ser	145	150	155	160
Gly	Glu	Phe	Pro	Ile	Ser	Ser	Asn	Ala	Tyr	Gly	Asp	Gln	Met	Leu	Ser	165	170	175	
Ser	Ser	Leu	His	Lys	Arg	Val	His	Pro	Tyr	Pro	Val	Ser	Glu	Pro	Gly	180	185	190	
Ser	Ala	Arg	Trp	Asp	Glu	Lys	Lys	Xaa	Asp	Gly	Trp	Lys	Asp	Arg	Met	195	200	205	
Asp	Asp	Trp	Lys	Leu	Gln	Gln	Gly	Asn	Leu	Gly	Pro	Glu	Pro	Asp	Glu	210	215	220	
Asp	Pro	Asp	Ala	Ala	Met	Leu	Asp	Glu	Ala	Arg	Gln	Pro	Leu	Ser	Arg	225	230	235	240
Lys	Val	Pro	Ile	Ala	Ser	Ser	Lys	Ile	Asn	Pro	Tyr	Arg	Met	Val	Ile	245	250	255	
Val	Ala	Arg	Leu	Val	Ile	Leu	Ala	Phe	Phe	Leu	Arg	Tyr	Arg	Leu	Met	260	265	270	
Asn	Pro	Val	His	Asp	Ala	Leu	Gly	Leu	Trp	Leu	Thr	Ser	Ile	Ile	Cys	275	280	285	
Glu	Ile	Trp	Phe	Ala	Phe	Ser	Trp	Ile	Leu	Asp	Gln	Phe	Pro	Lys	Trp	290	295	300	

Phe Pro Ile Asp Arg Glu Thr Tyr Leu Asp Arg Leu Ser Ile Arg Tyr
 305 310 315 320
 Glu Arg Glu Gly Glu Pro Asn Met Leu Ala Pro Val Asp Val Phe Val
 325 330 335
 Ser Thr Val Asp Pro Met Lys Glu Pro Pro Leu Val Thr Ala Asn Thr
 340 345 350
 Val Leu Ser Ile Leu Ala Met Asp Tyr Pro Val Asp Lys Ile Ser Cys
 355 360 365
 Tyr Ile Ser Asp Asp Gly Ala Ser Met Cys Thr Phe Glu Ser Leu Ser
 370 375 380
 Glu Thr Ala Glu Phe Ala Arg Lys Trp Val Pro Phe Cys Lys Lys Phe
 385 390 395 400
 Ser Ile Glu Pro Arg Ala Pro Glu Met Tyr Phe Ser Glu Lys Ile Asp
 405 410 415
 Tyr Leu Lys Asp Lys Val Gln Pro Thr Phe Val Lys Glu Arg Arg Ala
 420 425 430
 Met Lys Arg Glu Tyr Glu Glu Phe Lys Val Arg Ile Asn Ala Leu Val
 435 440 445
 Ala Lys Ala Gln Lys Val Pro Gln Gly Gly Trp Ile Met Gln Asp Gly
 450 455 460
 Thr Pro Trp Pro Gly Asn Asn Thr Lys Asp His Pro Gly Met Ile Gln
 465 470 475 480
 Val Phe Leu Gly Ser Ser Gly Gly Leu Asp Thr Glu Gly Asn Gln Leu
 485 490 495
 Pro Arg Leu Val Tyr Val Ser Arg Glu Lys Arg Pro Gly Phe Gln His
 500 505 510
 His Lys Lys Ala Gly Ala Met Asn Ala Leu Val Arg Val Ser Ala Val
 515 520 525
 Leu Thr Asn Ala Pro Phe Met Leu Asn Leu Asp Cys Asp His Tyr Val
 530 535 540
 Asn Asn Ser Lys Ala Ala Arg Glu Ala Met Cys Phe Leu Met Asp Pro
 545 550 555 560
 Gln Thr Gly Lys Lys Val Cys Tyr Val Gln Phe Pro Gln Arg Phe Asp
 565 570 575
 Gly Ile Asp Thr His Asp Arg Tyr Ala Asn Arg Asn Thr Val Phe Phe
 580 585 590
 Asp Ile Asn Met Lys Gly Leu Asp Gly Ile Gln Gly Pro Val Tyr Val
 595 600 605

Gly Thr Gly Cys Val Phe Arg Arg Gln Ala Leu Tyr Gly Tyr Asn Pro
 610 615 620
 Pro Lys Gly Pro Lys Arg Pro Lys Met Val Ser Cys Asp Cys Cys Pro
 625 630 635 640
 Cys Phe Gly Ser Arg Lys Lys Tyr Lys Glu Lys Asn Asp Ala Asn Gly
 645 650 655
 Glu Ala Ala Ser Leu Lys Gly Met Asp Asp Asp Lys Glu Val Leu Met
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 Ser Gln Met Asn Phe Glu Lys Lys Phe Gly Gln Ser Ser Ile Phe Val
 675 680 685
 Thr Ser Thr Leu Met Glu Glu Gly Gly Val Pro Pro Ser Ser Ser Pro
 690 695 700
 Ala Ala Leu Leu Lys Glu Ala Ile His Val Ile Ser Cys Gly Tyr Glu
 705 710 715 720
 Asp Lys Thr Glu Trp Gly Leu Glu Leu Gly Trp Ile Tyr Gly Ser Ile
 725 730 735
 Thr Glu Asp Ile Leu Thr Gly Phe Lys Met His Cys Arg Gly Trp Arg
 740 745 750
 Ser Ile Tyr Cys Met Pro Lys Arg Ala Ala Phe Lys Gly Thr Ala Pro
 755 760 765
 Ile Asn Leu Ser Asp Arg Leu Asn Gln Val Leu Arg Trp Ala Leu Gly
 770 775 780
 Ser Ile Glu Ile Phe Phe Ser His His Cys Pro Leu Trp Tyr Gly Phe
 785 790 795 800
 Lys Glu Lys Lys Leu Lys Trp Leu Glu Arg Phe Ala Tyr Ala Asn Thr
 805 810 815
 Thr Val Tyr Pro Phe Thr Ser Ile Pro Leu Val Ala Tyr Cys Ile Leu
 820 825 830
 Pro Ala Val Cys Leu Leu Thr Asp Lys Phe Ile Met Pro Pro Ile Ser
 835 840 845
 Thr Phe Ala Gly Leu Tyr Phe Val Ala Leu Phe Ser Ser Ile Ile Ala
 850 855 860
 Thr Gly Ile Leu Glu Leu Lys Trp Ser Gly Val Ser Ile Glu Glu Trp
 865 870 875 880
 Trp Arg Asn Glu Gln Phe Trp Val Ile Gly Gly Val Ser Ala His Leu
 885 890 895
 Phe Ala Val Ile Gln Gly Leu Leu Lys Val Leu Ala Gly Ile Asp Thr
 900 905 910

Asn Phe Thr Val Thr Ser Lys Ala Thr Asp Asp Glu Glu Phe Gly Glu
 915 920 925
 Leu Tyr Thr Phe Lys Trp Thr Thr Leu Leu Ile Pro Pro Thr Thr Ile
 930 935 940
 Leu Ile Ile Asn Ile Val Gly Val Val Ala Gly Ile Ser Asp Ala Ile
 945 950 955 960
 Asn Asn Gly Tyr Gln Ser Trp Gly Pro Leu Phe Gly Lys Leu Phe Phe
 965 970 975
 Ser Phe Trp Val Ile Val His Leu Tyr Pro Phe Leu Lys Gly Leu Met
 980 985 990
 Gly Arg Gln Asn Arg Thr Pro Thr Ile Val Val Ile Trp Ser Val Leu
 995 1000 1005
 Leu Ala Ser Ile Phe Ser Leu Leu Trp Val Arg Ile Asp Pro Phe Val
 1010 1015 1020
 Leu Lys Thr Lys Gly Pro Asp Thr Lys Leu Cys Gly Ile Asn Cys
 1025 1030 1035

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 <211> 2125
 <212> DNA
 <213> Glycine max

<400> 15
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aaggtcctgt gttgttttgt tctttt                                     2125

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<210> 16
<211> 610
<212> PRT
<213> Glycine max

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Ala Lys Ala Gln Lys Met Pro Glu Glu Gly Trp Thr Met Gln Asp Gly
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Thr Pro Trp Pro Gly Asn Asn Pro Arg Asp His Pro Gly Met Ile Gln
          20          25          30

Val Phe Leu Gly His Ser Gly Gly Leu Asp Thr Asp Gly Asn Glu Leu
          35          40          45

Pro Arg Leu Val Tyr Val Ser Arg Glu Lys Arg Pro Gly Phe Gln His
          50          55          60

His Lys Lys Ala Gly Ala Met Asn Ala Leu Ile Arg Val Ser Ala Val
          65          70          75          80

Leu Thr Asn Gly Ala Tyr Leu Leu Asn Val Asp Cys Asp His Tyr Phe
          85          90          95

Asn Asn Ser Lys Ala Leu Lys Glu Ala Met Cys Phe Met Met Asp Pro
          100          105          110

Val Leu Gly Lys Lys Thr Cys Tyr Val Gln Phe Pro Gln Arg Phe Asp
          115          120          125

Gly Ile Asp Leu His Asp Arg Tyr Ala Asn Arg Asn Ile Val Phe Phe
          130          135          140

Asp Ile Asn Met Lys Gly Gln Asp Gly Val Gln Gly Pro Val Tyr Val
          145          150          155          160

Gly Thr Gly Cys Cys Phe Asn Arg Gln Ala Leu Tyr Gly Tyr Asp Pro
          165          170          175

Val Leu Thr Glu Glu Asp Leu Glu Pro Asn Ile Ile Val Lys Ser Cys
          180          185          190

Cys Gly Ser Arg Lys Lys Gly Lys Gly Gly Asn Lys Lys Tyr Ser Asp
          195          200          205

Lys Lys Lys Ala Met Gly Arg Thr Glu Ser Thr Val Pro Ile Phe Asn
          210          215          220

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Met	Glu	Asp	Ile	Glu	Glu	Gly	Val	Glu	Gly	Tyr	Asp	Asp	Glu	Arg	Thr	225	230	235	240
Leu	Leu	Met	Ser	Gln	Lys	Ser	Leu	Glu	Lys	Arg	Phe	Gly	Gln	Ser	Pro	245	250	255	
Val	Phe	Ile	Ala	Ala	Thr	Phe	Met	Glu	Gln	Gly	Gly	Ile	Pro	Pro	Ser	260	265	270	
Thr	Asn	Pro	Ala	Thr	Leu	Leu	Lys	Glu	Ala	Ile	His	Val	Ile	Ser	Cys	275	280	285	
Gly	Tyr	Glu	Asp	Lys	Thr	Glu	Trp	Gly	Lys	Glu	Ile	Gly	Trp	Ile	Tyr	290	295	300	
Gly	Ser	Val	Thr	Glu	Asp	Ile	Leu	Thr	Gly	Phe	Lys	Met	His	Ala	Arg	305	310	315	320
Gly	Trp	Ile	Ser	Ile	Tyr	Cys	Met	Pro	Pro	Arg	Pro	Ala	Phe	Lys	Gly	325	330	335	
Ser	Ala	Pro	Ile	Asn	Leu	Ser	Asp	Arg	Leu	Asn	Gln	Val	Leu	Arg	Trp	340	345	350	
Ala	Leu	Gly	Ser	Ile	Glu	Ile	Phe	Leu	Ser	Arg	His	Cys	Pro	Leu	Trp	355	360	365	
Tyr	Gly	Tyr	Asn	Gly	Lys	Leu	Lys	Pro	Leu	Met	Arg	Leu	Ala	Tyr	Ile	370	375	380	
Asn	Thr	Ile	Val	Tyr	Pro	Phe	Thr	Ser	Ile	Pro	Leu	Ile	Ala	Tyr	Cys	385	390	395	400
Thr	Leu	Pro	Ala	Phe	Cys	Leu	Leu	Thr	Asn	Lys	Phe	Ile	Ile	Pro	Glu	405	410	415	
Ile	Ser	Asn	Phe	Ala	Ser	Met	Trp	Phe	Ile	Leu	Leu	Phe	Val	Ser	Ile	420	425	430	
Phe	Thr	Thr	Ser	Ile	Leu	Glu	Leu	Arg	Trp	Ser	Gly	Val	Ser	Ile	Glu	435	440	445	
Asp	Trp	Trp	Arg	Asn	Glu	Gln	Phe	Trp	Val	Ile	Gly	Gly	Thr	Ser	Ala	450	455	460	
His	Leu	Phe	Ala	Val	Phe	Gln	Gly	Leu	Leu	Lys	Val	Leu	Ala	Gly	Ile	465	470	475	480
Asp	Thr	Asn	Phe	Thr	Val	Thr	Ser	Lys	Ala	Ser	Asp	Glu	Asp	Gly	Asp	485	490	495	
Phe	Ala	Glu	Leu	Tyr	Val	Phe	Lys	Trp	Thr	Ser	Leu	Leu	Ile	Pro	Pro	500	505	510	
Thr	Thr	Val	Leu	Ile	Val	Asn	Leu	Val	Gly	Ile	Val	Ala	Gly	Val	Ser	515	520	525	

Tyr Ala Ile Asn Ser Gly Tyr Gln Ser Trp Gly Pro Leu Phe Gly Lys
 530 535 540

Leu Phe Phe Ala Ile Trp Val Ile Ala His Leu Tyr Pro Phe Leu Lys
 545 550 555 560

Gly Leu Leu Gly Arg Gln Asn Arg Thr Pro Thr Ile Val Ile Val Trp
 565 570 575

Ser Val Leu Leu Ala Ser Ile Phe Ser Leu Leu Trp Val Arg Ile Asp
 580 585 590

Pro Phe Thr Ser Asp Ser Asn Lys Leu Thr Asn Gly Gln Cys Gly Ile
 595 600 605

Asn Cys
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 <212> DNA
 <213> Glycine max

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 gtccagtgta gacgtctttg tcagtactgt tgatcccatg aaggaacctc cactgattac 240
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 tgtctcagat gatggtgctg ctatgcttac ttttgaagca ctgtctgaga catctgaatt 360
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 gtactttggt cagaagatgg actatctgaa aaataaagta caccagcat ttgtcagggg 480
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 aaataatgtg agggatcatc ctggcatgat tcaggtcttc cttgggcagg atggtgttcg 660
 tgatgttgaa ggaaatgagc taccctgctt ggtctacgtt tctagagaaa agaggccagg 720
 gtttgatcac cacaaaaagg ctggtgcaat gaatgctctg gtacgggctt cagcaattat 780
 cactaatgca ccctatcttc tgaatgttga ttgtgatcac tacattaaca atagcaaggc 840
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<210> 18
<211> 793
<212> PRT
<213> Glycine max

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B

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Val Ile Cys Glu Ile Trp Phe Ala Val Ser Trp Ile Met Asp Gln Phe
      20                      25                      30

Pro Lys Trp Tyr Pro Ile Gln Arg Glu Thr Tyr Leu Asp Arg Leu Ser
      35                      40                      45

Leu Arg Tyr Glu Lys Glu Gly Lys Pro Ser Glu Leu Ser Ser Val Asp
      50                      55                      60

Val Phe Val Ser Thr Val Asp Pro Met Lys Glu Pro Pro Leu Ile Thr
      65                      70                      75                      80

Ala Asn Thr Val Leu Ser Ile Leu Ala Val Asp Tyr Pro Val Asp Lys
      85                      90                      95

Val Ala Cys Tyr Val Ser Asp Asp Gly Ala Ala Met Leu Thr Phe Glu
      100                      105                      110

Ala Leu Ser Glu Thr Ser Glu Phe Ala Arg Arg Trp Val Pro Phe Cys
      115                      120                      125

Lys Lys Tyr Asn Ile Glu Pro Arg Ala Pro Glu Trp Tyr Phe Gly Gln
      130                      135                      140

Lys Met Asp Tyr Leu Lys Asn Lys Val His Pro Ala Phe Val Arg Glu
      145                      150                      155                      160

Arg Arg Ala Met Lys Arg Asp Tyr Glu Glu Phe Lys Val Arg Ile Asn
      165                      170                      175

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Ser Leu Val Ala Thr Ala Gln Lys Val Pro Glu Asp Gly Trp Thr Met
 180 185 190
 Gln Asp Gly Thr Pro Trp Pro Gly Asn Asn Val Arg Asp His Pro Gly
 195 200 205
 Met Ile Gln Val Phe Leu Gly Gln Asp Gly Val Arg Asp Val Glu Gly
 210 215 220
 Asn Glu Leu Pro Arg Leu Val Tyr Val Ser Arg Glu Lys Arg Pro Gly
 225 230 235 240
 Phe Asp His His Lys Lys Ala Gly Ala Met Asn Ala Leu Val Arg Ala
 245 250 255
 Ser Ala Ile Ile Thr Asn Ala Pro Tyr Leu Leu Asn Val Asp Cys Asp
 260 265 270
 His Tyr Ile Asn Asn Ser Lys Ala Leu Arg Glu Ala Met Cys Phe Met
 275 280 285
 Met Asp Pro Gln Leu Gly Lys Lys Val Cys Tyr Val Gln Phe Pro Gln
 290 295 300
 Arg Phe Asp Gly Ile Asp Arg His Asp Arg Tyr Ser Asn Arg Asn Val
 305 310 315 320
 Val Phe Phe Asp Ile Asn Met Lys Gly Leu Asp Gly Ile Gln Gly Pro
 325 330 335
 Ile Tyr Val Gly Thr Gly Cys Val Phe Arg Arg Tyr Ala Leu Tyr Gly
 340 345 350
 Tyr Asp Ala Pro Ala Lys Lys Lys Pro Pro Ser Lys Thr Cys Asn Cys
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 Trp Pro Lys Trp Cys Cys Leu Cys Cys Gly Ser Arg Lys Lys Lys Asn
 370 375 380
 Ala Asn Ser Lys Lys Glu Lys Lys Arg Lys Val Lys His Ser Glu Ala
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 Ser Lys Gln Ile His Ala Leu Glu Asn Ile Glu Ala Gly Asn Glu Gly
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 Thr Asn Asn Glu Lys Thr Ser Asn Leu Thr Gln Thr Lys Leu Glu Lys
 420 425 430
 Arg Phe Gly Gln Ser Pro Val Phe Val Ala Ser Thr Leu Leu Asp Asp
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 Gly Gly Val Pro His Gly Val Ser Pro Ala Ser Leu Leu Lys Glu Ala
 450 455 460
 Ile Gln Val Ile Ser Cys Gly Tyr Glu Asp Lys Thr Glu Trp Gly Lys
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Glu Val Gly Trp Ile Tyr Gly Ser Val Thr Glu Asp Ile Leu Thr Gly
 485 490 495
 Phe Lys Met His Cys His Gly Trp Arg Ser Val Tyr Cys Ile Pro Lys
 500 505 510
 Arg Pro Ala Phe Lys Gly Ser Ala Pro Ile Asn Leu Ser Asp Arg Leu
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 His Gln Val Leu Arg Trp Ala Leu Gly Ser Val Glu Ile Phe Phe Ser
 530 535 540
 Arg His Cys Pro Ile Trp Tyr Gly Tyr Gly Gly Gly Leu Lys Leu Leu
 545 550 555 560
 Glu Arg Phe Ser Tyr Ile Asn Ser Val Val Tyr Pro Trp Thr Ser Leu
 565 570 575
 Pro Leu Leu Val Tyr Cys Thr Leu Pro Ala Ile Cys Leu Leu Thr Gly
 580 585 590
 Lys Phe Ile Val Pro Glu Ile Ser Asn Tyr Ala Ser Leu Val Phe Met
 595 600 605
 Ala Leu Phe Ile Ser Ile Ala Ala Thr Gly Ile Leu Glu Met Gln Trp
 610 615 620
 Gly Gly Val Ser Ile Asp Asp Trp Trp Arg Asn Glu Gln Phe Trp Val
 625 630 635 640
 Ile Gly Gly Val Ser Ser His Leu Phe Ala Leu Phe Gln Gly Leu Leu
 645 650 655
 Lys Val Leu Ala Gly Val Asn Thr Asn Phe Thr Val Thr Ser Lys Ala
 660 665 670
 Ala Asp Asp Gly Glu Phe Ser Glu Leu Tyr Ile Phe Lys Trp Thr Ser
 675 680 685
 Leu Leu Ile Pro Pro Met Thr Leu Leu Ile Met Asn Ile Val Gly Val
 690 695 700
 Val Val Gly Ile Ser Asp Ala Ile Asn Asn Gly Tyr Asp Ser Trp Gly
 705 710 715 720
 Pro Leu Phe Gly Arg Leu Phe Phe Ala Leu Trp Val Ile Leu His Leu
 725 730 735
 Tyr Pro Phe Leu Lys Gly Leu Leu Gly Lys Gln Asp Arg Met Pro Thr
 740 745 750
 Ile Ile Leu Val Trp Ser Ile Leu Leu Ala Ser Ile Leu Thr Leu Met
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 Trp Val Arg Ile Asn Pro Phe Val Ser Arg Asp Gly Pro Val Leu Glu
 770 775 780

Ile Cys Gly Leu Asn Cys Asp Glu Ser
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<211> 1733
<212> DNA
<213> Triticum aestivum

<220>
<221> unsure
<222> (262)
<223> n = a, c, g or t

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tttgatatta acttgagggg ccttgacggc attcaaggac cagtttatgt gggaactggg 180
tgtgttttca acagaacggc tatctatggg tatgagcccc caattaaggc gaagaagcca 240
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<210> 20
<211> 506
<212> PRT
<213> Triticum aestivum

<220>
<221> UNSURE
<222> (88)
<223> Xaa = any amino acid

<400> 20

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		20						25					30			
Tyr	Ala	Asn	Arg	Asn	Thr	Val	Phe	Phe	Asp	Ile	Asn	Leu	Arg	Gly	Leu	
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Arg	Thr	Ala	Ile	Tyr	Gly	Tyr	Glu	Pro	Pro	Ile	Lys	Ala	Lys	Lys	Pro	
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Gly	Phe	Leu	Ala	Ser	Leu	Cys	Xaa	Gly	Lys	Lys	Lys	Ala	Ser	Lys	Ser	
				85					90					95		
Lys	Lys	Arg	Ser	Ser	Asp	Lys	Lys	Lys	Ser	Asn	Lys	His	Val	Asp	Ser	
			100					105					110			
Ser	Val	Pro	Val	Phe	Asn	Leu	Glu	Asp	Ile	Glu	Glu	Gly	Val	Glu	Gly	
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Ala	Gly	Phe	Asp	Asp	Glu	Lys	Ser	Val	Leu	Met	Ser	Gln	Met	Ser	Leu	
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Glu	Lys	Arg	Phe	Gly	Gln	Ser	Ala	Ala	Phe	Val	Ala	Ser	Thr	Leu	Met	
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	210					215					220					
Pro	Lys	Arg	Pro	Ala	Phe	Lys	Gly	Ser	Ala	Pro	Ile	Asn	Leu	Ser	Asp	
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				245					250					255		
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			260					265					270			
Phe	Leu	Glu	Arg	Phe	Ala	Tyr	Ile	Asn	Thr	Thr	Ile	Tyr	Pro	Leu	Thr	
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Ser	Leu	Pro	Leu	Leu	Val	Tyr	Cys	Ile	Leu	Pro	Ala	Ile	Cys	Leu	Leu	
	290					295					300					

Thr Gly Lys Phe Ile Met Pro Glu Ile Ser Asn Leu Ala Ser Ile Trp
 305 310 315 320
 Phe Ile Ala Leu Phe Leu Ser Ile Phe Ala Thr Gly Ile Leu Glu Met
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 Arg Trp Ser Gly Val Gly Ile Asp Glu Trp Trp Arg Asn Glu Gln Phe
 340 345 350
 Trp Val Ile Gly Gly Ile Ser Ala His Leu Phe Ala Val Phe Gln Gly
 355 360 365
 Leu Leu Lys Val Leu Ala Gly Ile Asp Thr Asn Phe Thr Val Thr Ser
 370 375 380
 Lys Ala Asn Asp Glu Glu Gly Asp Phe Ala Glu Leu Tyr Met Phe Lys
 385 390 395 400
 Trp Thr Thr Leu Leu Ile Pro Pro Thr Thr Ile Leu Ile Ile Asn Met
 405 410 415
 Val Gly Val Val Ala Gly Thr Ser Tyr Ala Ile Asn Ser Gly Tyr Gln
 420 425 430
 Ser Trp Gly Pro Leu Phe Gly Lys Leu Phe Phe Ala Phe Trp Val Ile
 435 440 445
 Val His Leu Tyr Pro Phe Leu Lys Gly Leu Met Gly Arg Gln Asn Arg
 450 455 460
 Thr Pro Thr Ile Val Ile Val Trp Ala Val Leu Leu Ala Ser Ile Phe
 465 470 475 480
 Ser Leu Leu Trp Val Arg Val Asp Pro Phe Thr Thr Arg Leu Ala Gly
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 Pro Asn Ile Gln Thr Cys Gly Ile Asn Cys
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<210> 21
 <211> 1029
 <212> DNA
 <213> Triticum aestivum

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gcctggaaa 1029

<210> 22
<211> 340
<212> PRT
<213> Triticum aestivum

<400> 22
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His Ala Leu Val Pro Ser Tyr Met Ser Gly Gly Gly Gly Gly Gly Lys
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Arg Ile His Pro Leu Pro Phe Ala Asp Pro Asn Leu Pro Val Gln Pro
35 40 45
Arg Ser Met Asp Pro Ser Lys Asp Leu Ala Ala Tyr Gly Tyr Gly Ser
50 55 60
Val Ala Trp Lys Glu Arg Met Glu Gly Trp Lys Gln Lys Gln Glu Arg
65 70 75 80
Leu Gln His Val Arg Ser Glu Gly Gly Gly Asp Trp Asp Gly Asp Asp
85 90 95
Ala Asp Leu Pro Leu Met Asp Glu Ala Arg Gln Pro Leu Ser Arg Lys
100 105 110
Val Pro Ile Ser Ser Ser Arg Ile Asn Pro Tyr Arg Met Ile Ile Val
115 120 125
Ile Arg Leu Val Val Leu Gly Phe Phe Phe His Tyr Arg Val Met His
130 135 140
Pro Ala Lys Asp Ala Phe Ala Leu Trp Leu Ile Ser Val Ile Cys Glu
145 150 155 160
Ile Trp Phe Ala Met Ser Cys Ile Leu Asp Gln Phe Pro Lys Trp Phe
165 170 175
Pro Ile Glu Arg Glu Thr Tyr Leu Asp Arg Leu Ser Leu Arg Phe Asp
180 185 190
Lys Glu Gly Gln Pro Ser Gln Leu Ala Pro Ile Asp Phe Phe Val Ser
195 200 205
Thr Val Asp Pro Thr Lys Glu Pro Pro Leu Val Thr Ala Asn Thr Val
210 215 220
Leu Ser Ile Leu Ser Val Asp Tyr Pro Val Glu Lys Val Ser Cys Tyr
225 230 235 240

Val Ser Asp Asp Gly Ala Ala Met Leu Thr Phe Glu Ala Leu Ser Glu
245 250 255

Thr Ser Glu Phe Ala Lys Lys Trp Val Pro Phe Ser Lys Lys Phe Asn
260 265 270

Ile Glu Pro Arg Ala Pro Glu Trp Tyr Phe Gln Gln Lys Ile Asp Tyr
275 280 285

Leu Lys Asp Lys Val Ala Ala Ser Phe Val Arg Glu Arg Arg Ala Met
290 295 300

Lys Arg Glu Tyr Glu Glu Phe Lys Val Arg Ile Asn Ala Leu Val Ala
305 310 315 320

Lys Ala Gln Lys Val Pro Glu Glu Gly Trp Thr Met Gln Asp Gly Ser
325 330 335

Pro Trp Pro Gly
340

<210> 23
<211> 2663
<212> DNA
<213> Picramnia pentandra

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tgggtaaaaa aaaaaaaaaa aaa 2663

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 <212> PRT
 <213> *Picramnia pentandra*

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 Thr Val Leu Ser Ile Leu Ala Val Asp Tyr Pro Val Asp Lys Val Thr
 35 40 45
 Cys Tyr Val Ser Asp Asp Gly Ala Ala Met Leu Thr Phe Glu Ala Leu
 50 55 60
 Ser Glu Thr Ser Glu Phe Ala Arg Lys Trp Val Pro Phe Cys Lys Lys
 65 70 75 80
 Phe Ser Ile Glu Pro Arg Ala Pro Glu Trp Tyr Phe Ser Gln Lys Met
 85 90 95
 Asp Tyr Leu Lys Asn Lys Val His Pro Ser Phe Val Arg Glu Arg Arg
 100 105 110
 Ala Met Lys Arg Glu Tyr Glu Val Phe Lys Val Arg Ile Asn Gly Leu
 115 120 125
 Val Ala Met Ala Gln Lys Val Pro Glu Asp Gly Trp Thr Met Gln Asp
 130 135 140
 Gly Thr Pro Trp Pro Gly Asn Asn Val Arg Asp His Pro Gly Met Ile
 145 150 155 160
 Gln Val Phe Leu Gly His Asn Gly Val Arg Asp Val Glu Gly Asn Glu
 165 170 175

Leu Pro Arg Leu Ile Tyr Val Ser Arg Glu Lys Arg Pro Gly Phe Glu
 180 185 190
 His His Lys Lys Ala Gly Ala Met Asn Ser Leu Val Arg Val Ser Ala
 195 200 205
 Val Ile Ser Asn Ala Pro Tyr Ile Leu Asn Val Asp Cys Asp His Tyr
 210 215 220
 Ile Asn Asn Ser Lys Ala Leu Arg Glu Ala Met Cys Phe Met Met Asp
 225 230 235 240
 Pro Thr Ser Gly Lys Lys Leu Cys Tyr Val Gln Phe Pro Gln Arg Phe
 245 250 255
 Asp Gly Ile Asp Arg His Asp Arg Tyr Ser Asn Arg Asn Val Val Phe
 260 265 270
 Phe Asp Ile Asn Met Lys Gly Leu Asp Gly Ile Gln Gly Pro Ile Tyr
 275 280 285
 Val Gly Thr Gly Cys Val Phe Arg Arg Val Ala Leu Tyr Gly Tyr Asp
 290 295 300
 Ala Pro Val Thr Lys Lys Ser Pro Gly Lys Ala Cys Asn Cys Trp Pro
 305 310 315 320
 Lys Trp Leu Cys Cys Cys Cys Gly Ser Arg Lys Asn Lys Lys Ser Lys
 325 330 335
 Pro Lys Lys Glu Lys Lys Lys Ser Lys Asn Arg Glu Ala Ser Lys Gln
 340 345 350
 Ile His Ala Leu Glu Asn Ile Glu Glu Gly Met Gly Gly Leu Asn Ser
 355 360 365
 Glu Lys Ser Cys Glu Thr Thr Pro Leu Lys Leu Glu Lys Lys Phe Gly
 370 375 380
 Gln Ser Pro Val Phe Val Ala Ser Thr Leu Leu Glu Asp Gly Gly Val
 385 390 395 400
 Pro Gln Asp Ala Thr Pro Ala Ala Leu Leu Lys Glu Ala Ile Gln Val
 405 410 415
 Ile Ser Cys Gly Tyr Glu Asp Lys Thr Glu Trp Gly Lys Glu Val Gly
 420 425 430
 Trp Ile Tyr Gly Ser Val Thr Glu Asp Ile Leu Thr Gly Phe Lys Met
 435 440 445
 His Cys His Gly Trp Arg Ser Val Tyr Cys Met Pro Ala Arg Pro Ala
 450 455 460
 Phe Lys Gly Ser Ala Pro Ile Asn Leu Ser Asp Arg Leu His Gln Val
 465 470 475 480

Leu Arg Trp Ala Leu Gly Ser Val Glu Ile Phe Leu Ser Arg His Cys
 485 490 495
 Pro Leu Trp Tyr Gly Tyr Gly Gly Gly Leu Lys Trp Leu Glu Arg Phe
 500 505 510
 Ser Tyr Val Ser Ser Val Val Tyr Pro Trp Thr Ser Ile Pro Leu Leu
 515 520 525
 Val Tyr Cys Thr Leu Pro Ala Ile Cys Leu Leu Thr Gly Lys Phe Ile
 530 535 540
 Val Pro Glu Ile Ser Asn Tyr Ala Ser Ile Leu Phe Met Leu Leu Phe
 545 550 555 560
 Ile Phe Ile Ala Ala Thr Ser Ile Leu Glu Met Gln Trp Gly Gly Val
 565 570 575
 Gly Ile Asp Asp Trp Trp Arg Asn Glu Gln Phe Trp Val Ile Gly Gly
 580 585 590
 Val Ser Ser His Leu Phe Ala Leu Phe Gln Gly Leu Leu Lys Val Leu
 595 600 605
 Ala Gly Val Asn Thr Asn Phe Thr Val Thr Ser Lys Ala Ala Asp Glu
 610 615 620
 Gly Asp Phe Ser Glu Leu Tyr Leu Phe Lys Trp Thr Thr Leu Leu Ile
 625 630 635 640
 Pro Pro Thr Thr Leu Leu Ile Ile Asn Ile Val Gly Val Val Val Gly
 645 650 655
 Val Ser Asp Ala Ile Asn Asn Gly Tyr Asp Ser Trp Gly Pro Leu Phe
 660 665 670
 Gly Arg Leu Phe Phe Ala Phe Trp Val Ile Val His Leu Tyr Pro Phe
 675 680 685
 Leu Lys Gly Leu Leu Gly Lys Gln Asp Arg Thr Pro Thr Ile Ile Val
 690 695 700
 Val Trp Ser Ile Leu Leu Ala Ser Ile Leu Thr Leu Leu Trp Val Arg
 705 710 715 720
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 725 730 735
 Leu Asn Cys Asp
 740

<210> 25
 <211> 3563
 <212> DNA
 <213> Impatiens balsamia

<400> 25

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 <212> PRT
 <213> Impatiens balsamia

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 35 40 45
 Gly Lys Ser Ala Thr Gly Asp Thr Phe Val Ala Cys Asn Glu Cys Gly
 50 55 60
 Phe Pro Val Cys Arg Pro Cys Tyr Glu Tyr Glu Arg Lys Asp Gly Asn
 65 70 75 80
 Gln Cys Cys Pro Gln Cys Lys Thr Arg Tyr Lys Arg Gln Lys Gly Ser
 85 90 95
 Pro Arg Val Glu Gly Asp Glu Glu Glu Glu Asp Val Asp Asp Leu Glu
 100 105 110
 Asn Glu Phe Asn Tyr Ser Gly Lys Gly Lys Asn Gln Lys Lys Val Thr
 115 120 125
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 130 135 140
 Val Ser Ser Ser Arg His Asp Glu Ser Gln Gln Pro Val Pro Leu Leu
 145 150 155 160
 Thr His Gly His Ser Val Ser Gly Glu Ile Pro Thr Pro Asp Asn His
 165 170 175
 Ser Ile Arg Thr Thr Ser Gly Pro Ile Gly Pro Val Glu Lys Ser Ile
 180 185 190
 Pro Tyr Ile Asp Pro Arg Gln Pro Val Ala Val Arg Ile Ile Val Asp
 195 200 205
 Pro Ser Lys Asp Leu Asn Ser Tyr Gly Leu Gly Asn Val Asp Trp Lys
 210 215 220
 Glu Arg Val Glu Gly Trp Lys Leu Lys Gln Glu Lys Asn Met Val Gln
 225 230 235 240

Met Thr Ser Arg Tyr Pro Glu Gly Lys Gly Asp Thr Glu Gly Thr Gly
 245 250 255
 Ser Asn Gly Glu Glu Leu Gln Met Ala Ala Asp Asp Ile Arg Gln Pro
 260 265 270
 Met Ser Arg Ile Val Pro Ile Ser Ser Thr His Leu Thr Pro Tyr Arg
 275 280 285
 Val Val Ile Ile Leu Arg Leu Ile Ile Leu Gly Phe Phe Leu Gln Tyr
 290 295 300
 Arg Cys Thr His Pro Val Lys Asp Ala Tyr Pro Leu Trp Leu Thr Ser
 305 310 315 320
 Val Ile Cys Glu Val Trp Phe Ala Leu Ser Trp Leu Leu Asp Gln Phe
 325 330 335
 Pro Lys Trp Ser Pro Val Asn Arg Glu Thr Tyr Leu Asp Arg Leu Ser
 340 345 350
 Met Arg Phe Asp Arg Glu Gly Glu Pro Ser Gln Leu Ala Pro Ile Asp
 355 360 365
 Val Phe Val Ser Thr Val Asp Pro Leu Lys Glu Pro Pro Leu Val Thr
 370 375 380
 Ala Asn Thr Val Leu Ser Ile Leu Ala Val Asp Tyr Pro Val Asp Lys
 385 390 395 400
 Val Ser Cys Tyr Val Ser Asp Asp Gly Ser Ala Met Leu Thr Phe Glu
 405 410 415
 Ala Leu Ser Glu Thr Ala Glu Phe Ala Lys Lys Trp Ala Pro Phe Cys
 420 425 430
 Lys Lys His Ser Ile Glu Pro Arg Ala Pro Glu Phe Tyr Phe Ala Gln
 435 440 445
 Lys Ile Asp Tyr Leu Lys Asp Lys Val Gln Pro Ser Phe Val Lys Glu
 450 455 460
 Arg Arg Ala Met Lys Arg Glu Tyr Glu Glu Phe Lys Val Arg Ile Asn
 465 470 475 480
 Ala Leu Val Ala Lys Ala Gln Lys Val Pro Glu Glu Gly Trp Thr Met
 485 490 495
 Gln Asp Gly Thr Pro Trp Pro Gly Asn Asn Ser Arg Asp His Pro Gly
 500 505 510
 Met Ile Gln Val Phe Leu Gly His Ser Gly Gly Phe Asp Thr Glu Gly
 515 520 525
 Asn Glu Leu Pro Arg Leu Val Tyr Val Ser Arg Glu Lys Arg Pro Gly
 530 535 540

Phe Gln His His Lys Lys Ala Gly Ala Met Asn Ala Leu Ile Arg Val
545 550 555 560
Ser Ala Val Leu Thr Asn Gly Ala Tyr Leu Leu Asn Val Asp Cys Asp
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His Tyr Phe Asn Asn Ser Lys Cys Leu Lys Glu Ala Met Cys Phe Met
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Met Asp Pro Asn Leu Gly Lys Lys Thr Cys Tyr Val Gln Phe Pro Gln
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Arg Phe Asp Gly Ile Asp Leu His Asp Arg Tyr Ala Asn Arg Asn Ile
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Val Tyr Val Gly Thr Gly Cys Cys Phe Asn Arg Gln Ala Leu Tyr Gly
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Tyr Asp Pro Val Leu Thr Glu Glu Asp Leu Glu Pro Asn Ile Ile Ile
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Lys Ser Cys Cys Gly Ser Arg Lys Lys Gly Lys Gly Gly Asn Lys Lys
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Tyr Ile Asp Lys Asn Arg Ala Leu Lys Arg Thr Glu Ser Thr Ala Pro
690 695 700
Ile Phe Asn Met Glu Asp Ile Glu Glu Gly Ile Glu Gly Tyr Asp Asp
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Glu Arg Ser Phe Leu Met Ala Gln Ser Tyr Glu Lys Arg Phe Gly Gln
725 730 735
Ser Pro Val Leu Ile Ala Ala Thr Phe Met Glu Gln Gly Gly Leu Pro
740 745 750
Pro Ser Thr Asn Ser Ala Thr Leu Leu Lys Glu Ala Ile His Val Ile
755 760 765
Ser Cys Gly Tyr Glu Asp Lys Thr Glu Trp Gly Lys Glu Ile Gly Trp
770 775 780
Ile Tyr Gly Ser Val Thr Glu Asp Ile Leu Thr Gly Phe Lys Met His
785 790 795 800
Thr Arg Gly Trp Ile Ser Ile Tyr Cys Met Pro Pro Arg Pro Ala Phe
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Lys Gly Ser Ala Pro Ile Asn Leu Ser Asp Arg Leu Asn Gln Val Leu
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Arg Trp Ala Leu Gly Ser Ile Glu Ile Leu Leu Ser Arg His Cys Pro
835 840 845

Ile Trp Tyr Gly Tyr Ser Gly Arg Leu Lys Phe Leu Glu Arg Leu Ala
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 Tyr Ile Asn Thr Ile Val Tyr Pro Leu Thr Ser Ile Pro Leu Leu Ala
 865 870 875 880
 Tyr Cys Thr Leu Pro Ala Ile Cys Leu Leu Thr Gly Lys Phe Ile Val
 885 890 895
 Pro Glu Ile Ser Asn Tyr Ala Ser Ile Trp Phe Ile Leu Leu Phe Val
 900 905 910
 Ser Ile Phe Ser Thr Gly Ile Leu Glu Leu Arg Trp Ser Gly Val Thr
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 Leu Glu Asp Trp Trp Arg Asn Glu Gln Phe Trp Val Ile Gly Gly Thr
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 Ser Ala His Leu Phe Ala Val Phe Gln Gly Leu Leu Lys Val Leu Ala
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 Gly Ile Asp Thr Asn Phe Thr Val Thr Ser Lys Ala Ser Asp Glu Asp
 965 970 975
 Gly Asp Phe Ala Glu Leu Tyr Val Phe Lys Trp Thr Ser Leu Leu Ile
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 Pro Pro Thr Thr Ile Leu Val Val Asn Met Val Gly Ile Val Ala Gly
 995 1000 1005
 Val Ser Phe Ala Ile Asn Ser Gly Tyr Gln Ser Trp Gly Pro Leu Phe
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 Leu Lys Gly Leu Leu Gly Arg Gln Asn Arg Thr Pro Thr Ile Val Ile
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 Val Trp Ser Val Leu Leu Ala Ser Ile Phe Ser Leu Leu Trp Val Arg
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<212> DNA

<213> Glycine max

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<210> 28
 <211> 431
 <212> PRT
 <213> Glycine max

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 35 40 45
 Cys Tyr Val Ser Asp Asp Gly Ala Ala Met Leu Thr Phe Glu Ala Leu
 50 55 60
 Ala Glu Thr Ser Glu Phe Ala Arg Lys Trp Val Pro Phe Ser Lys Lys
 65 70 75 80
 Tyr Asn Ile Glu Pro Arg Ala Pro Glu Trp Tyr Phe Ala Gln Lys Ile
 85 90 95
 Asp Tyr Leu Lys Asp Lys Val Gln Pro Ser Phe Val Lys Asp Arg Arg
 100 105 110
 Ala Met Lys Arg Glu Tyr Glu Glu Phe Lys Ile Arg Ile Asn Gly Leu
 115 120 125

Val	Ala	Lys	Ala	Gln	Lys	Ile	Pro	Glu	Glu	Gly	Trp	Val	Met	Gln	Asp		
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Leu	Pro	Arg	Leu	Val	Tyr	Val	Ser	Arg	Glu	Lys	Arg	Pro	Gly	Phe	Gln		
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His	His	Lys	Lys	Ala	Gly	Ala	Met	Asn	Ala	Leu	Val	Arg	Val	Ser	Ala		
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Val	Leu	Thr	Asn	Gly	Pro	Phe	Leu	Leu	Asn	Leu	Asp	Cys	Asp	His	Tyr		
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Asp	Gly	Ile	Asp	Arg	Asn	Asp	Arg	Tyr	Ala	Asn	Arg	Asn	Thr	Val	Phe		
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Phe	Asp	Ile	Asn	Leu	Arg	Gly	Leu	Asp	Gly	Ile	Gln	Gly	Pro	Val	Tyr		
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Gln	Ser	Ala	Val	Phe	Val	Ala	Ser	Thr	Leu	Met	Glu	Asn	Gly	Gly	Val		
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Pro	Gln	Ser	Ala	Thr	Pro	Glu	Thr	Leu	Leu	Lys	Glu	Ala	Ile	His	Val		
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<210> 29
 <211> 3626
 <212> DNA
 <213> *Triticum aestivum*

<400> 29

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<210> 30
 <211> 1080
 <212> PRT
 <213> Triticum aestivum

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Asp Val Phe Thr Ala Cys Asp Val Cys Arg Phe Pro Val Cys Arg Pro
          35                      40                      45

Cys Tyr Glu His Glu Arg Lys Glu Gly Thr Gln Ala Cys Leu Gln Cys
          50                      55                      60

Lys Thr Lys Tyr Lys Arg His Arg Gly Ser Pro Ala Ile Arg Gly Glu
          65                      70                      75                      80

Glu Gly Asp Asp Thr Asp Ala Asp Asp Gly Ser Asp Phe Asn Tyr Pro
          85                      90                      95

Ala Ser Gly Thr Glu Asp Gln Lys Gln Lys Ile Ala Asp Arg Met Arg
          100                      105                      110

Ser Trp Arg Met Asn Thr Gly Gly Ser Gly Asn Val Gly His Pro Lys
          115                      120                      125

Tyr Asp Ser Gly Glu Ile Gly Leu Ser Lys Tyr Asp Ser Gly Glu Ile
          130                      135                      140

Pro Arg Gly Tyr Val Pro Ser Val Thr Asn Ser Gln Met Ser Gly Glu
          145                      150                      155                      160

Ile Pro Gly Ala Ser Pro Asp His His Met Met Ser Pro Thr Gly Asn
          165                      170                      175

Ile Ser Arg Arg Ala Pro Phe Pro Tyr Val Asn His Ser Pro Asn Pro
          180                      185                      190

Ser Arg Glu Phe Ser Gly Ser Ile Gly Asn Val Ala Trp Lys Glu Arg
          195                      200                      205

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Val	Asp	Gly	Trp	Lys	Met	Lys	Gln	Asp	Lys	Gly	Ala	Ile	Pro	Met	Thr	210	215	220	
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Asp	Ala	Ser	Thr	Glu	Tyr	Asn	Met	Glu	Asp	Ala	Leu	Leu	Asn	Asp	Glu	245	250	255	
Thr	Arg	Gln	Pro	Leu	Ser	Arg	Lys	Val	Pro	Ile	Ala	Ser	Ser	Lys	Ile	260	265	270	
Asn	Pro	Tyr	Arg	Met	Val	Ile	Val	Leu	Arg	Leu	Val	Val	Leu	Ser	Ile	275	280	285	
Phe	Leu	His	Tyr	Arg	Leu	Thr	Asn	Pro	Val	Arg	Asn	Ala	Tyr	Pro	Leu	290	295	300	
Trp	Leu	Leu	Ser	Val	Ile	Cys	Glu	Ile	Trp	Phe	Ala	Leu	Ser	Trp	Ile	305	310	315	320
Leu	Asp	Gln	Phe	Pro	Lys	Trp	Phe	Pro	Ile	Asn	Arg	Glu	Thr	Tyr	Leu	325	330	335	
Asp	Arg	Leu	Ala	Leu	Arg	Tyr	Asp	Arg	Glu	Gly	Glu	Pro	Ser	Gln	Leu	340	345	350	
Ala	Ala	Val	Asp	Ile	Phe	Val	Ser	Thr	Val	Asp	Pro	Leu	Lys	Glu	Pro	355	360	365	
Pro	Ile	Val	Thr	Ala	Asn	Thr	Val	Leu	Ser	Ile	Leu	Ala	Val	Asp	Tyr	370	375	380	
Pro	Val	Asp	Lys	Val	Ser	Cys	Tyr	Val	Ser	Asp	Asp	Gly	Ala	Ser	Met	385	390	395	400
Leu	Thr	Phe	Asp	Ala	Leu	Ala	Glu	Thr	Ser	Glu	Phe	Ala	Arg	Lys	Trp	405	410	415	
Val	Pro	Phe	Val	Lys	Lys	Tyr	Asp	Ile	Glu	Pro	Arg	Ala	Pro	Glu	Phe	420	425	430	
Tyr	Phe	Cys	Gln	Lys	Ile	Asp	Tyr	Leu	Lys	Asp	Lys	Val	Gln	Pro	Ser	435	440	445	
Phe	Val	Lys	Asp	Arg	Arg	Ala	Met	Lys	Arg	Glu	Tyr	Glu	Glu	Phe	Lys	450	455	460	
Ile	Arg	Ile	Asn	Ala	Leu	Val	Ser	Lys	Ala	Leu	Lys	Val	Pro	Glu	Glu	465	470	475	480
Gly	Trp	Ile	Met	Gln	Asp	Gly	Thr	Pro	Trp	Pro	Gly	Asn	Asn	Thr	Arg	485	490	495	
Asp	His	Pro	Gly	Met	Ile	Gln	Val	Phe	Leu	Gly	His	Ser	Gly	Gly	Leu	500	505	510	

Asp	Thr	Glu	Gly	Asn	Glu	Leu	Pro	Arg	Leu	Val	Tyr	Val	Ser	Arg	Glu	515	520	525
Lys	Arg	Pro	Gly	Phe	Gln	His	His	Lys	Lys	Ala	Gly	Ala	Met	Asn	Ala	530	535	540
Leu	Val	Arg	Val	Ser	Ala	Val	Leu	Thr	Asn	Gly	Gln	Tyr	Met	Leu	Asn	545	550	555
Leu	Asp	Cys	Asp	His	Tyr	Ile	Asn	Asn	Ser	Lys	Ala	Val	Arg	Glu	Ala	565	570	575
Met	Cys	Phe	Leu	Met	Asp	Pro	Asn	Leu	Gly	Pro	Gln	Val	Cys	Tyr	Val	580	585	590
Gln	Phe	Pro	Gln	Arg	Phe	Asp	Gly	Ile	Asp	Arg	Asn	Asp	Arg	Tyr	Ala	595	600	605
Asn	Arg	Asn	Thr	Val	Phe	Phe	Asp	Ile	Asn	Leu	Arg	Gly	Leu	Asp	Gly	610	615	620
Ile	Gln	Gly	Pro	Val	Tyr	Val	Gly	Thr	Gly	Cys	Val	Phe	Asn	Arg	Thr	625	630	635
Ala	Ile	Tyr	Gly	Tyr	Glu	Pro	Pro	Ile	Lys	Ala	Lys	Lys	Pro	Gly	Phe	645	650	655
Leu	Ala	Ser	Leu	Cys	Gly	Gly	Lys	Lys	Lys	Ala	Ser	Lys	Ser	Lys	Lys	660	665	670
Arg	Ser	Ser	Asp	Lys	Lys	Lys	Ser	Asn	Lys	His	Val	Asp	Ser	Ser	Val	675	680	685
Pro	Val	Phe	Asn	Leu	Glu	Asp	Ile	Glu	Glu	Gly	Val	Glu	Gly	Ala	Gly	690	695	700
Phe	Asp	Asp	Glu	Lys	Ser	Val	Leu	Met	Ser	Gln	Met	Ser	Leu	Glu	Lys	705	710	715
Arg	Phe	Gly	Gln	Ser	Ala	Ala	Phe	Val	Ala	Ser	Thr	Leu	Met	Glu	Tyr	725	730	735
Gly	Gly	Val	Pro	Gln	Ser	Ser	Thr	Pro	Glu	Ser	Leu	Leu	Lys	Glu	Ala	740	745	750
Ile	His	Val	Ile	Ser	Cys	Gly	Tyr	Glu	Asp	Lys	Ser	Glu	Trp	Gly	Thr	755	760	765
Glu	Ile	Gly	Trp	Ile	Tyr	Gly	Ser	Val	Thr	Glu	Asp	Ile	Leu	Thr	Gly	770	775	780
Phe	Lys	Met	His	Ala	Arg	Gly	Trp	Arg	Ser	Val	Tyr	Cys	Met	Pro	Lys	785	790	795
Arg	Pro	Ala	Phe	Lys	Gly	Ser	Ala	Pro	Ile	Asn	Leu	Ser	Asp	Arg	Leu	805	810	815

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Arg His Cys Pro Leu Trp Tyr Gly Tyr Gly Gly Arg Leu Lys Phe Leu
 835 840 845

Glu Arg Phe Ala Tyr Ile Asn Thr Thr Ile Tyr Pro Leu Thr Ser Leu
 850 855 860

Pro Leu Leu Val Tyr Cys Ile Leu Pro Ala Ile Cys Leu Leu Thr Gly
 865 870 875 880

Lys Phe Ile Met Pro Glu Ile Ser Asn Leu Ala Ser Ile Trp Phe Ile
 885 890 895

Ala Leu Phe Leu Ser Ile Phe Ala Thr Gly Ile Leu Glu Met Arg Trp
 900 905 910

Ser Gly Val Gly Ile Asp Glu Trp Trp Arg Asn Glu Gln Phe Trp Val
 915 920 925

Ile Gly Gly Ile Ser Ala His Leu Phe Ala Val Phe Gln Gly Leu Leu
 930 935 940

Lys Val Leu Ala Gly Ile Asp Thr Asn Phe Thr Val Thr Ser Lys Ala
 945 950 955 960

Asn Asp Glu Glu Gly Asp Phe Ala Glu Leu Tyr Met Phe Lys Trp Thr
 965 970 975

Thr Leu Leu Ile Pro Pro Thr Thr Ile Leu Ile Ile Asn Met Val Gly
 980 985 990

Val Val Ala Gly Thr Ser Tyr Ala Ile Asn Ser Gly Tyr Gln Ser Trp
 995 1000 1005

Gly Pro Leu Phe Gly Lys Leu Phe Phe Ala Phe Trp Val Ile Val His
 1010 1015 1020

Leu Tyr Pro Phe Leu Lys Gly Leu Met Gly Arg Gln Asn Arg Thr Pro
 1025 1030 1035 1040

Thr Ile Val Ile Val Trp Ala Val Leu Leu Ala Ser Ile Phe Ser Leu
 1045 1050 1055

Leu Trp Val Arg Val Asp Pro Phe Thr Thr Arg Leu Ala Gly Pro Asn
 1060 1065 1070

Ile Gln Thr Cys Gly Ile Asn Cys
 1075 1080

<210> 31
 <211> 685
 <212> PRT
 <213> Gossypium hirsutum

<400> 31

Arg	Arg	Trp	Val	Pro	Phe	Cys	Lys	Lys	His	Asn	Val	Glu	Pro	Arg	Ala
1				5					10					15	
Pro	Glu	Phe	Tyr	Phe	Asn	Glu	Lys	Ile	Asp	Tyr	Leu	Lys	Asp	Lys	Val
		20						25					30		
His	Pro	Ser	Phe	Val	Lys	Glu	Arg	Arg	Ala	Met	Lys	Arg	Glu	Tyr	Glu
		35					40					45			
Glu	Phe	Lys	Val	Arg	Ile	Asn	Ala	Leu	Val	Ala	Lys	Ala	Gln	Lys	Lys
	50					55					60				
Pro	Glu	Glu	Gly	Trp	Val	Met	Gln	Asp	Gly	Thr	Pro	Trp	Pro	Gly	Asn
65					70					75					80
Asn	Thr	Arg	Asp	His	Pro	Gly	Met	Ile	Gln	Val	Tyr	Leu	Gly	Ser	Ala
				85					90					95	
Gly	Ala	Leu	Asp	Val	Asp	Gly	Lys	Glu	Leu	Pro	Arg	Leu	Val	Tyr	Val
			100					105					110		
Ser	Arg	Glu	Lys	Arg	Pro	Gly	Tyr	Gln	His	His	Lys	Lys	Ala	Gly	Ala
		115					120					125			
Glu	Asn	Ala	Leu	Val	Arg	Val	Ser	Ala	Val	Leu	Thr	Asn	Ala	Pro	Phe
	130					135					140				
Ile	Leu	Asn	Leu	Asp	Cys	Asp	His	Tyr	Ile	Asn	Asn	Ser	Lys	Ala	Met
145					150					155					160
Arg	Glu	Ala	Met	Cys	Phe	Leu	Met	Asp	Pro	Gln	Phe	Gly	Lys	Lys	Leu
				165					170					175	
Cys	Tyr	Val	Gln	Phe	Pro	Gln	Arg	Phe	Asp	Gly	Ile	Asp	Arg	His	Asp
			180					185					190		
Arg	Tyr	Ala	Asn	Arg	Asn	Val	Val	Phe	Phe	Asp	Ile	Asn	Met	Leu	Gly
		195				200						205			
Leu	Asp	Gly	Leu	Gln	Gly	Pro	Val	Tyr	Val	Gly	Thr	Gly	Cys	Val	Phe
	210					215					220				
Asn	Arg	Gln	Ala	Leu	Tyr	Gly	Tyr	Asp	Pro	Pro	Val	Ser	Glu	Lys	Arg
225					230					235					240
Pro	Lys	Met	Thr	Cys	Asp	Cys	Trp	Pro	Ser	Trp	Cys	Cys	Cys	Cys	Cys
				245					250					255	
Gly	Gly	Ser	Arg	Lys	Lys	Ser	Lys	Lys	Lys	Gly	Glu	Lys	Lys	Gly	Leu
			260					265						270	
Leu	Gly	Gly	Leu	Leu	Tyr	Gly	Lys	Lys	Lys	Lys	Met	Met	Gly	Lys	Asn
		275					280					285			
Tyr	Val	Lys	Lys	Gly	Ser	Ala	Pro	Val	Phe	Asp	Leu	Glu	Glu	Ile	Glu

290	295	300
Glu Gly Leu Glu Gly Tyr Glu Glu Leu Glu Lys Ser Thr Leu Met Ser 305 310 315 320		
Gln Lys Asn Phe Glu Lys Arg Phe Gly Gln Ser Pro Val Phe Ile Ala 325 330 335		
Ser Thr Leu Met Glu Asn Gly Gly Leu Pro Glu Gly Thr Asn Ser Thr 340 345 350		
Ser Leu Ile Lys Glu Ala Ile His Val Ile Ser Cys Gly Tyr Glu Glu 355 360 365		
Lys Thr Glu Trp Gly Lys Glu Ile Gly Trp Ile Tyr Gly Ser Val Thr 370 375 380		
Glu Asp Ile Leu Thr Gly Phe Lys Met His Cys Arg Gly Trp Lys Ser 385 390 395 400		
Val Tyr Cys Val Pro Lys Arg Pro Ala Phe Lys Gly Ser Ala Pro Ile 405 410 415		
Asn Leu Ser Asp Arg Leu His Gln Val Leu Arg Trp Ala Leu Gly Ser 420 425 430		
Val Glu Ile Phe Leu Ser Arg His Cys Pro Leu Trp Tyr Gly Tyr Gly 435 440 445		
Gly Lys Leu Lys Trp Leu Glu Arg Leu Ala Tyr Ile Asn Thr Ile Val 450 455 460		
Tyr Pro Phe Thr Ser Ile Pro Leu Leu Ala Tyr Cys Thr Ile Pro Ala 465 470 475 480		
Val Cys Leu Leu Thr Gly Lys Phe Ile Ile Pro Thr Leu Ser Asn Leu 485 490 495		
Thr Ser Val Trp Phe Leu Ala Leu Phe Leu Ser Ile Ile Ala Thr Gly 500 505 510		
Val Leu Glu Leu Arg Trp Ser Gly Val Ser Ile Gln Asp Trp Trp Arg 515 520 525		
Asn Glu Gln Phe Trp Val Ile Gly Gly Val Ser Ala His Leu Phe Ala 530 535 540		
Val Phe Gln Gly Leu Leu Lys Val Leu Ala Gly Val Asp Thr Asn Phe 545 550 555 560		
Thr Val Thr Ala Lys Ala Ala Asp Asp Thr Glu Phe Gly Glu Leu Tyr 565 570 575		
Leu Phe Lys Trp Thr Thr Leu Leu Ile Pro Pro Thr Thr Leu Ile Ile 580 585 590		
Leu Asn Met Val Gly Val Val Ala Gly Val Ser Asp Ala Ile Asn Asn		

595	600	605
Gly Tyr Gly Ser Trp Gly Pro Leu Phe Gly Lys Leu Phe Phe Ala Phe		
610	615	620
Trp Val Ile Leu His Leu Tyr Pro Phe Leu Lys Gly Leu Met Gly Arg		
625	630	635 640
Gln Asn Arg Thr Pro Thr Ile Val Val Leu Trp Ser Ile Leu Leu Ala		
	645	650 655
Ser Ile Phe Ser Leu Val Trp Val Arg Ile Asp Pro Phe Leu Pro Lys		
	660	665 670
Gln Thr Gly Pro Val Leu Lys Gln Cys Gly Val Glu Cys		
	675	680 685
<210> 32		
<211> 701		
<212> PRT		
<213> Gossypium hirsutum		
<400> 32		
Asp Tyr Pro Val Glu Lys Val Ser Cys Tyr Val Ser Asp Asp Gly Ala		
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Ala Met Leu Thr Phe Glu Ala Leu Ser Glu Thr Ser Glu Phe Ala Arg		
	20	25 30
Lys Trp Val Pro Phe Cys Lys Lys Tyr Asn Ile Glu Pro Arg Ala Pro		
	35	40 45
Glu Trp Tyr Phe Ala Gln Lys Ile Asp Tyr Leu Lys Asp Lys Val Gln		
	50	55 60
Thr Ser Phe Val Lys Glu Arg Arg Ala Met Lys Arg Glu Tyr Glu Glu		
	65	70 75 80
Phe Lys Val Arg Val Asn Gly Leu Val Ala Lys Ala Gln Lys Val Pro		
	85	90 95
Glu Glu Gly Trp Ile Met Gln Asp Gly Thr Pro Trp Pro Gly Asn Asn		
	100	105 110
Thr Arg Asp His Pro Gly Met Ile Gln Val Phe Leu Gly Gln Ser Gly		
	115	120 125
Gly Leu Asp Ala Glu Gly Asn Glu Leu Pro Arg Leu Val Tyr Val Ser		
	130	135 140
Arg Glu Lys Arg Pro Gly Phe Gln His His Lys Lys Ala Gly Ala Met		
	145	150 155 160
Asn Ala Leu Val Arg Val Ser Ala Val Leu Thr Asn Gly Ala Phe Leu		
	165	170 175

Leu Asn Leu Asp Cys Asp His Tyr Ile Asn Asn Ser Lys Ala Leu Arg
 180 185 190
 Glu Ala Met Cys Phe Leu Met Asp Pro Asn Leu Gly Lys Gln Val Cys
 195 200 205
 Tyr Val Gln Phe Pro Gln Arg Phe Asp Gly Ile Asp Arg Asn Asp Arg
 210 215 220
 Tyr Ala Asn Arg Asn Thr Val Phe Phe Asp Ile Asn Leu Arg Gly Leu
 225 230 235 240
 Asp Gly Ile Gln Gly Pro Val Tyr Val Gly Thr Gly Cys Val Phe Asn
 245 250 255
 Arg Thr Ala Leu Tyr Gly Tyr Glu Pro Pro Leu Lys Pro Lys His Arg
 260 265 270
 Lys Thr Gly Ile Leu Ser Ser Leu Cys Gly Gly Ser Arg Lys Lys Ser
 275 280 285
 Ser Lys Ser Ser Lys Lys Gly Ser Asp Lys Lys Lys Ser Gly Lys His
 290 295 300
 Val Asp Ser Thr Val Pro Val Phe Asn Leu Glu Asp Ile Glu Glu Gly
 305 310 315 320
 Val Glu Gly Ala Gly Phe Asp Asp Glu Lys Ser Leu Leu Met Ser Gln
 325 330 335
 Met Ser Leu Glu Lys Arg Phe Gly Gln Ser Ala Val Phe Val Ala Ser
 340 345 350
 Thr Leu Met Glu Asn Gly Gly Val Pro Gln Ser Ala Thr Pro Glu Thr
 355 360 365
 Leu Leu Lys Glu Ala Ile His Val Ile Ser Cys Gly Tyr Glu Asp Lys
 370 375 380
 Thr Asp Trp Gly Ser Glu Ile Gly Trp Ile Tyr Gly Ser Val Thr Glu
 385 390 395 400
 Asp Ile Leu Thr Gly Phe Lys Met His Ala Arg Gly Trp Arg Ser Ile
 405 410 415
 Tyr Cys Met Pro Lys Arg Pro Ala Phe Lys Gly Ser Ala Pro Ile Asn
 420 425 430
 Leu Ser Asp Arg Leu Asn Gln Val Leu Arg Trp Ala Leu Gly Ser Val
 435 440 445
 Glu Ile Leu Phe Ser Arg His Cys Pro Ile Trp Tyr Gly Tyr Ser Gly
 450 455 460
 Arg Leu Lys Trp Leu Glu Arg Phe Ala Tyr Val Asn Thr Thr Ile Tyr
 465 470 475 480

Pro Val Thr Ala Ile Pro Leu Leu Met Tyr Cys Thr Leu Pro Ala Val
 485 490 495
 Cys Leu Leu Thr Asn Lys Phe Ile Ile Pro Gln Ile Ser Asn Leu Ala
 500 505 510
 Ser Ile Trp Phe Ile Ser Leu Phe Leu Ser Ile Phe Ala Thr Gly Ile
 515 520 525
 Leu Lys Met Lys Trp Asn Gly Val Gly Ile Asp Gln Trp Trp Arg Asn
 530 535 540
 Glu Gln Phe Trp Val Ile Gly Gly Val Ser Ala His Leu Phe Ala Val
 545 550 555 560
 Phe Gln Gly Leu Leu Lys Val Leu Ala Gly Ile Asp Thr Asn Phe Thr
 565 570 575
 Val Thr Ser Lys Ala Ser Asp Glu Asp Gly Asp Phe Ala Glu Leu Tyr
 580 585 590
 Met Phe Lys Trp Thr Thr Leu Leu Ile Pro Pro Thr Thr Leu Leu Ile
 595 600 605
 Ile Asn Leu Val Gly Val Val Ala Gly Ile Ser Tyr Val Ile Asn Ser
 610 615 620
 Gly Tyr Gln Ser Trp Gly Pro Leu Phe Gly Lys Leu Phe Phe Ala Phe
 625 630 635 640
 Trp Val Ile Ile His Leu Tyr Pro Phe Leu Lys Gly Leu Met Gly Arg
 645 650 655
 Gln Asn Arg Thr Pro Thr Ile Val Val Val Trp Ser Ile Leu Leu Ala
 660 665 670
 Ser Ile Phe Ser Leu Leu Trp Val Arg Ile Asp Pro Phe Thr Thr Arg
 675 680 685
 Val Thr Gly Pro Asp Val Glu Gln Cys Gly Ile Asn Cys
 690 695 700

<210> 33
 <211> 1065
 <212> PRT
 <213> Arabidopsis thaliana

<400> 33
 Met Glu Ser Glu Gly Glu Thr Ala Gly Lys Pro Met Lys Asn Ile Val
 1 5 10 15
 Pro Gln Thr Cys Gln Ile Cys Ser Asp Asn Val Gly Lys Thr Val Asp
 20 25 30
 Gly Asp Arg Phe Val Ala Cys Asp Ile Cys Ser Phe Pro Val Cys Arg
 35 40 45

Pro	Cys	Tyr	Glu	Tyr	Glu	Arg	Lys	Asp	Gly	Asn	Gln	Ser	Cys	Pro	Gln	
	50					55					60					
Cys	Lys	Thr	Arg	Tyr	Lys	Arg	Leu	Lys	Gly	Ser	Pro	Ala	Ile	Pro	Gly	
65					70					75					80	
Asp	Lys	Asp	Glu	Asp	Gly	Leu	Ala	Asp	Glu	Gly	Thr	Val	Glu	Phe	Asn	
				85					90					95		
Tyr	Pro	Gln	Lys	Glu	Lys	Ile	Ser	Glu	Arg	Met	Leu	Gly	Trp	His	Leu	
		100						105					110			
Thr	Arg	Gly	Lys	Gly	Glu	Glu	Met	Gly	Glu	Pro	Gln	Tyr	Asp	Lys	Glu	
		115					120					125				
Val	Ser	His	Asn	His	Leu	Pro	Arg	Leu	Thr	Ser	Arg	Gln	Asp	Thr	Ser	
	130					135					140					
Gly	Glu	Phe	Ser	Ala	Ala	Ser	Pro	Glu	Arg	Leu	Ser	Val	Ser	Ser	Thr	
145					150					155					160	
Ile	Ala	Gly	Gly	Lys	Arg	Leu	Pro	Tyr	Ser	Ser	Asp	Val	Asn	Gln	Ser	
				165					170					175		
Pro	Asn	Arg	Arg	Ile	Val	Asp	Pro	Val	Gly	Leu	Gly	Asn	Val	Ala	Trp	
			180					185					190			
Lys	Glu	Arg	Val	Asp	Gly	Trp	Lys	Met	Lys	Gln	Glu	Lys	Asn	Thr	Gly	
	195						200					205				
Pro	Val	Ser	Thr	Gln	Ala	Ala	Ser	Glu	Arg	Gly	Gly	Val	Asp	Ile	Asp	
	210					215					220					
Ala	Ser	Thr	Asp	Ile	Leu	Ala	Asp	Glu	Ala	Leu	Leu	Asn	Asp	Glu	Ala	
225					230					235					240	
Arg	Gln	Pro	Leu	Ser	Arg	Lys	Val	Ser	Ile	Pro	Ser	Ser	Arg	Ile	Asn	
				245					250					255		
Pro	Tyr	Arg	Met	Val	Ile	Met	Leu	Arg	Leu	Val	Ile	Leu	Cys	Leu	Phe	
			260					265					270			
Leu	His	Tyr	Arg	Ile	Thr	Asn	Pro	Val	Pro	Asn	Ala	Phe	Ala	Leu	Trp	
		275					280					285				
Leu	Val	Ser	Val	Ile	Cys	Glu	Ile	Trp	Phe	Ala	Leu	Ser	Trp	Ile	Leu	
	290					295					300					
Asp	Gln	Phe	Pro	Lys	Trp	Phe	Pro	Val	Asn	Arg	Glu	Thr	Tyr	Leu	Asp	
305					310					315					320	
Arg	Leu	Ala	Leu	Arg	Tyr	Asp	Arg	Glu	Gly	Glu	Pro	Ser	Gln	Leu	Ala	
				325					330					335		
Ala	Val	Asp	Ile	Phe	Val	Ser	Thr	Val	Asp	Pro	Leu	Lys	Glu	Pro	Pro	
			340					345					350			

Leu Val Thr Ala Asn Thr Val Leu Ser Ile Leu Ala Val Asp Tyr Pro
 355 360 365
 Val Asp Lys Val Ser Cys Tyr Val Phe Asp Asp Gly Ala Ala Met Leu
 370 375 380
 Ser Phe Glu Ser Leu Ala Glu Thr Ser Glu Phe Ala Arg Lys Trp Val
 385 390 395 400
 Pro Phe Cys Lys Lys Tyr Ser Ile Glu Pro Arg Ala Pro Glu Trp Tyr
 405 410 415
 Phe Ala Ala Lys Ile Asp Tyr Leu Lys Asp Lys Val Gln Thr Ser Phe
 420 425 430
 Val Lys Asp Arg Arg Ala Met Lys Arg Glu Tyr Glu Glu Phe Lys Ile
 435 440 445
 Arg Ile Asn Ala Leu Val Ser Lys Ala Leu Lys Cys Pro Glu Glu Gly
 450 455 460
 Trp Val Met Gln Asp Gly Thr Pro Trp Pro Gly Asn Asn Thr Gly Asp
 465 470 475 480
 His Pro Gly Met Ile Gln Val Phe Leu Gly Gln Asn Gly Gly Leu Asp
 485 490 495
 Ala Glu Gly Asn Glu Leu Pro Arg Leu Val Tyr Val Ser Arg Glu Lys
 500 505 510
 Arg Pro Gly Phe Gln His His Lys Lys Ala Gly Ala Met Asn Ala Leu
 515 520 525
 Val Arg Val Ser Ala Val Leu Thr Asn Gly Pro Phe Ile Leu Asn Leu
 530 535 540
 Asp Cys Asp His Tyr Ile Asn Asn Ser Lys Ala Leu Arg Glu Ala Met
 545 550 555 560
 Cys Phe Leu Met Asp Pro Asn Leu Gly Lys Gln Val Cys Tyr Val Gln
 565 570 575
 Phe Pro Gln Arg Phe Asp Gly Ile Asp Lys Asn Asp Arg Tyr Ala Asn
 580 585 590
 Arg Asn Thr Val Phe Phe Asp Ile Asn Leu Arg Gly Leu Asp Gly Ile
 595 600 605
 Gln Gly Pro Val Tyr Val Gly Thr Gly Cys Val Phe Asn Arg Thr Ala
 610 615 620
 Leu Tyr Gly Tyr Glu Pro Pro Ile Lys Val Lys His Lys Lys Pro Ser
 625 630 635 640
 Leu Leu Ser Lys Leu Cys Gly Gly Ser Arg Lys Lys Asn Ser Lys Ala
 645 650 655

Lys Lys Glu Ser Asp Lys Lys Lys Ser Gly Arg His Thr Asp Ser Thr
 660 665 670
 Val Pro Val Phe Asn Leu Asp Asp Ile Glu Glu Gly Val Glu Gly Ala
 675 680 685
 Gly Phe Asp Asp Glu Lys Ala Leu Leu Met Ser Gln Met Ser Leu Glu
 690 695 700
 Lys Arg Phe Gly Gln Ser Ala Val Phe Val Ala Ser Thr Leu Met Glu
 705 710 715 720
 Asn Gly Gly Val Pro Pro Ser Ala Thr Pro Glu Asn Leu Leu Lys Glu
 725 730 735
 Ala Ile His Val Ile Ser Cys Gly Tyr Glu Asp Lys Ser Asp Trp Gly
 740 745 750
 Met Glu Ile Gly Trp Ile Tyr Gly Ser Val Thr Glu Asp Ile Leu Thr
 755 760 765
 Gly Phe Lys Met His Ala Arg Gly Trp Arg Ser Ile Tyr Cys Met Pro
 770 775 780
 Lys Leu Pro Ala Phe Lys Gly Ser Ala Pro Ile Asn Leu Ser Asp Arg
 785 790 795 800
 Leu Asn Gln Val Leu Arg Trp Ala Leu Gly Ser Val Glu Ile Leu Phe
 805 810 815
 Ser Arg His Cys Pro Ile Trp Tyr Gly Tyr Asn Gly Arg Leu Lys Phe
 820 825 830
 Leu Glu Arg Phe Ala Tyr Val Asn Thr Thr Ile Tyr Pro Ile Thr Ser
 835 840 845
 Ile Pro Leu Leu Met Tyr Cys Thr Leu Leu Ala Val Cys Leu Phe Thr
 850 855 860
 Asn Gln Phe Ile Ile Pro Gln Ile Ser Asn Ile Ala Ser Ile Trp Phe
 865 870 875 880
 Leu Ser Leu Phe Leu Ser Ile Phe Ala Thr Gly Ile Leu Glu Met Arg
 885 890 895
 Trp Ser Gly Val Gly Ile Asp Glu Trp Trp Arg Asn Glu Gln Phe Trp
 900 905 910
 Val Ile Gly Gly Val Ser Ala His Leu Phe Ala Val Phe Gln Gly Ile
 915 920 925
 Leu Lys Val Leu Ala Gly Ile Asp Thr Asn Phe Thr Val Thr Ser Lys
 930 935 940
 Ala Ser Asp Glu Asp Gly Asp Phe Ala Glu Leu Tyr Leu Phe Lys Trp
 945 950 955 960

Thr	Thr	Leu	Leu	Ile	Pro	Pro	Thr	Thr	Leu	Leu	Ile	Val	Asn	Leu	Val
				965					970					975	
Gly	Val	Val	Ala	Gly	Val	Ser	Tyr	Ala	Ile	Asn	Ser	Gly	Tyr	Gln	Ser
			980					985					990		
Trp	Gly	Pro	Leu	Phe	Gly	Lys	Leu	Phe	Phe	Ala	Phe	Trp	Val	Ile	Val
		995					1000					1005			
His	Leu	Tyr	Pro	Phe	Leu	Lys	Gly	Leu	Met	Gly	Arg	Gln	Asn	Arg	Thr
	1010					1015					1020				
Pro	Thr	Ile	Val	Val	Val	Trp	Ser	Val	Leu	Leu	Ala	Ser	Ile	Phe	Ser
1025					1030					1035					1040
Leu	Leu	Trp	Val	Arg	Ile	Asp	Pro	Phe	Thr	Ser	Arg	Val	Thr	Gly	Pro
			1045						1050					1055	
Asp	Ile	Leu	Glu	Cys	Gly	Ile	Asn	Cys							
		1060						1065							

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